JVC

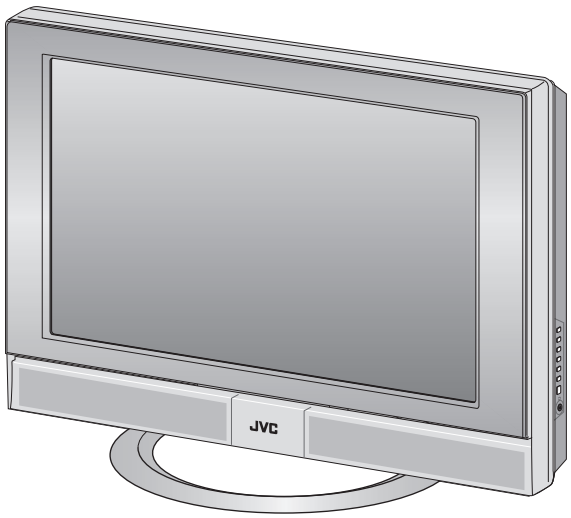
Preliminary

# SERVICE MANUAL

## LCD INTEGRATED DIGITAL TV

# LT-37DS6BJ,
# LT-37DS6BJ/P

| BASIC CHASSIS |
| --- |
| FL2 |



DynaPiX Powered by D.I.S.T.

InteriArt

T-V LINK

BBE

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE

DVB Digital Video Broadcasting

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No.YA299
2005/6

# SPECIFICATION

| Items | | Contents |
|---|---|---|
| Dimensions ( W × H × D ) | | 92.6 cm × 68.9 cm × 29.7 cm [Included stand]<br>92.6 cm × 63.1 cm × 10.8 cm [TV only] |
| Mass | | 26.0 kg [Included stand]<br>20.9 kg [TV only] |
| Power Input | | AC110V - AC240 V, 50 Hz / 60 Hz |
| Power Consumption | | 183 W (Standby: 2.6 W) |
| TV RF System | Analog<br>Digital | CCIR (I)<br>DVB-T |
| Colour System | | PAL / NTSC 3.58/4.43 [EXT only] |
| Stereo System | | NICAM (I) |
| Receiving Frequency | Analog<br>Digital | UHF: 470 MHz - 862 MHz<br>UHF: 474 MHz - 850 MHz |
| Intermediate Frequency | VIF<br>SIF | 38.9 MHz (I)<br>32.9 MHz (6.0 MHz :I) |
| Colour Sub Carrier Frequency | PAL<br>NTSC | 4.43 MHz<br>3.58 MHz / 4.43 MHz |
| Teletext System | Analog<br>Digital | FLOF (Fastext level 2.5), WST(World Standard system)<br>MHEG 5 UK profile |
| LCD panel | | 37V-inch wide aspect (16 : 9) |
| Screen Size | | Diagonal : 94.9 cm (H: 82.6 cm × V: 46.7 cm) |
| Display Pixels | | Horizontal : 1366 dots × Vertical : 768 dots (W-XGA) |
| Audio Power Output | | 10 W + 10 W |
| Speaker | | 6.6 cm, round type × 2 (Oblique corn) |
| Aerial terminal (VHF/UHF) | | 75 Ω unbalanced, coaxial |
| EXT-1 / EXT-2 (Input / Output) | | 21-pin Euro connector (SCART socket ) × 2 |
| EXT-3 (Input) | S-Video<br><br><br>Video<br>Audio | Mini-DIN 4 pin × 1<br>Y: 1 V (p-p), Positive (Negative sync provided), 75 Ω<br>C: 0.286 V (p-p) (Burst signal), 75 Ω<br>1 V (p-p), Positive (Negative sync provided), 75 Ω, RCA pin jack × 1<br>500 mV (rms), High impedance, RCA pin jack × 2 |
| EXT-4 (Input) | Component Video<br>1125i<br><br>625p / 525p / 625i / 525i<br><br>Audio | RCA pin jack × 3<br>Y : 1 V (p-p) (Sync signal: ±0.35V(p-p), 3-value sync.), 75Ω<br>Pb/Pr : ±0.35V(p-p), 75 Ω<br>Y : 1 V (p-p), Positive (Negative sync provided), 75 Ω<br>Cb/Cr : 0.7V(p-p), 75 Ω<br>500 mV(rms) (-4dBs), high impedance, RCA pin jack × 2 |
| HDMI Input | Video<br><br>Audio | HDMI connector × 1<br>(Digital-input terminal is not compatible with picture signals of computer signal)<br>Digital: HDMI connector × 1<br>Anarog: 500mV(rms) (-4dBs), high impedance, RCA pin jack × 2 |
| PC (RGB) Input | | D-sub 15 pin × 1<br>R/G/B : 0.7 V (p-p), 75Ω<br>HD / VD : 1 V (p-p) to 5 V (p-p), high impedance<br>< Available signal ><br>VGA : 640 pixels × 480 pixels (Horizontal : 31.5 kHz / Vertical : 60 Hz)<br>XGA : 1024 pixels × 768 pixels (Horizontal : 48.4 kHz / Vertical : 60 Hz) |
| Audio output | | 500 mV (rms), Low impedance, RCA pin jack × 2 |
| Headphone | | 3.5 mm stereo mini jack × 1 |
| Remote Control Unit | | RM-C1813H (AA/R6 dry cell battery × 2) |

Design & specifications are subject to change without notice.

# SECTION 1
# PRECAUTION

## 1.1 SAFETY PRECAUTIONS

(1) The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessary be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by ( ⚠ ) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may cause shock, fire, or other hazards.

(4) The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperature parts, moving parts and / or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

**WARNING**

(1) The equipment has been designed and manufactured to meet international safety standards.
(2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
(3) Repairs must be made in accordance with the relevant safety standards.
(4) It is essential that safety critical components are replaced by approved parts.
(5) If mains voltage selector is provided, check setting for local voltage.

## 1.2 INSTALLATION

### 1.2.1 HEAT DISSIPATION

If the heat dissipation vent behind this unit is blocked, cooling efficiency may deteriorate and temperature inside the unit will rise. The temperature sensor that protects the unit will be activated when internal temperature exceeds the pre-determined level and power will be turned off automatically.Therefore, please make sure pay attention not to block the heat dissipation vent as well as the ventilation outlet behind the unit and ensure that there is room for ventilation around it.

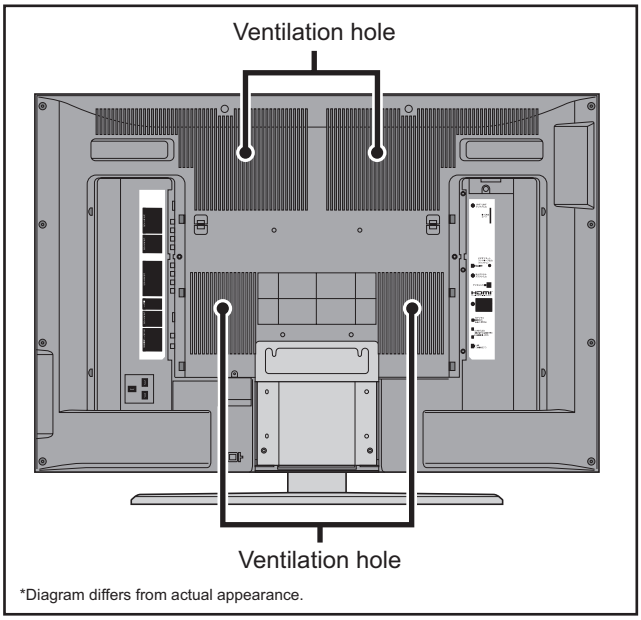



*Diagram differs from actual appearance.

### 1.2.2 INSTALLATION REQUIREMENTS

Ensure that the minimal distance is maintained, as specified below, between the unit with and the surrounding walls, as well as the floor etc.Install the unit on stable flooring or stands.Take precautionary measures to prevent the unit from tipping in order to protect against accidents and earthquakes.

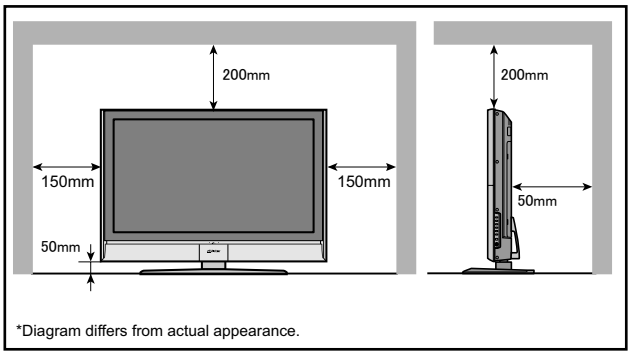



*Diagram differs from actual appearance.

### 1.2.3 INSTALLATION REQUIREMENTS

To ensure safety in an emergency such as an earthquake, and to prevent accidents, ensure that measures are taken to prevent the TV dropping or falling over.
Tie commercially available tough cord(s) to the hooks in the back of the TV, and fix the TV to solid walls or columns.

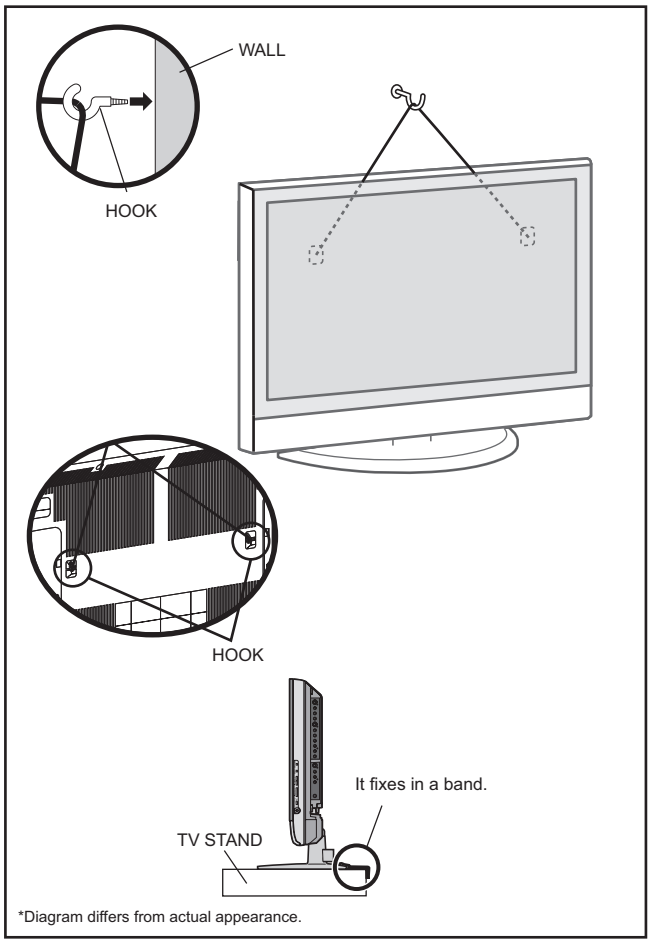



*Diagram differs from actual appearance.

### 1.2.4 NOTES ON HANDLING

(1) WHEN TAKING UNIT OUT OF A PACKING CASE
When taking the unit out of a packing case, do not grasp the upper part of the unit. If you take the unit out while grasping the upper part, the LCD PANEL may be damaged because of a pressure. Instead of grasping the upper part, put your hands on the lower backside or sides of the unit.

(2) AS FOR PRESSING OR TOUCHING A SPEAKER
Be careful not to press the opening of the speaker in the lower part of the unit and around them since the decorative sheet on the surface of the openings may be deformed.

## 1.3 HANDLING LCD PANEL

### 1.3.1 PRECAUTIONS FOR TRANSPORTATION

When transporting the unit, pressure exerted on the internal LCD panel due to improper handling (such as tossing and dropping) may cause damages even when the unit is carefully packed. To prevent accidents from occurring during transportation, pay careful attention before delivery, such as through explaining the handling instructions to transporters.

Ensure that the following requirements are met during transportation, as the LCD panel of this unit is made of glass and therefore fragile:

(1) USE A SPECIAL PACKING CASE FOR THE LCD PANEL
When transporting the LCD panel of the unit, use a special packing case (packing materials). A special packing case is used when a LCD panel is supplied as a service spare part.

(2) ATTACH PROTECTION SHEET TO THE FRONT
Since the front (display part) of the panel is vulnerable, attach the protection sheet to the front of the LCD panel before transportation. Protection sheet is used when a LCD panel is supplied as a service spare part.

(3) AVOID VIBRATIONS AND IMPACTS
The unit may be broken if it is toppled sideways even when properly packed. Continuous vibration may shift the gap of the panel, and the unit may not be able to display images properly. Ensure that the unit is carried by at least 2 persons and pay careful attention not to exert any vibration or impact on it.

(4) DO NOT PLACE EQUIPMENT HORIZONTALLY
Ensure that it is placed upright and not horizontally during transportation and storage as the LCD panel is very vulnerable to lateral impacts and may break. During transportation, ensure that the unit is loaded along the traveling direction of the vehicle, and avoid stacking them on one another. For storage, ensure that they are stacked in 2 layers or less even when placed upright.

### 1.3.2 OPTICAL FILTER (ON THE FRONT OF THE LCD PANEL)

(1) Avoid placing the unit under direct sunlight over a prolonged period of time. This may cause the optical filter to deteriorate in quality and COLOUR.

(2) Clean the filter surface by wiping it softly and lightly with a soft and lightly fuzz cloth (such as outing flannel).

(3) Do not use solvents such as benzene or thinner to wipe the filter surface. This may cause the filter to deteriorate in quality or the coating on the surface to come off. When cleaning the filter, usually use the neutral detergent diluted with water. When cleaning the dirty filter, use water-diluted ethanol.

(4) Since the filter surface is fragile, do not scratch or hit it with hard materials. Be careful enough not to touch the front surface, especially when taking the unit out of the packing case or during transportation.

### 1.3.3 PRECAUTIONS FOR REPLACEMENT OF EXTERIOR PARTS

Take note of the following when replacing exterior parts (REAR COVER, FRONT PANEL, etc.):

(1) Do not exert pressure on the front of the LCD panel (filter surface). It may cause irregular COLOUR.

(2) Pay careful attention not to scratch or stain the front of the LCD panel (filter surface) with hands.

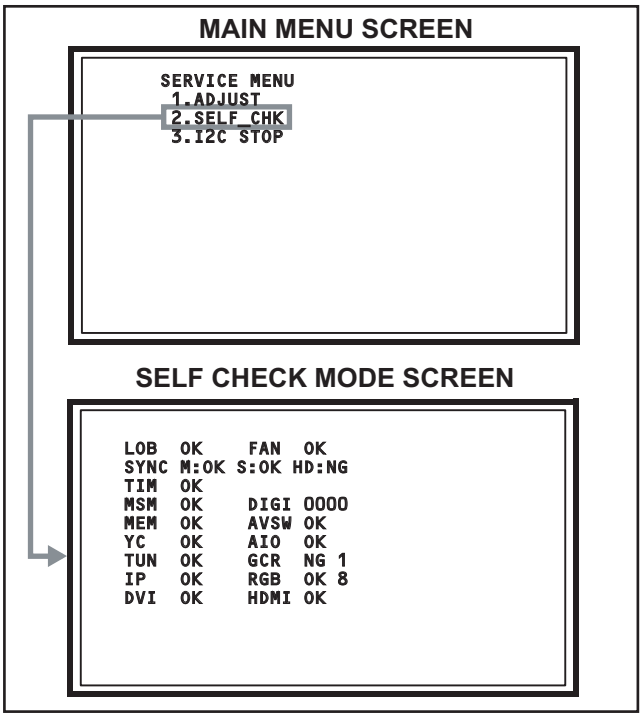
(3) When replacing exterior parts, the front (LCD panel) should be placed facing downward. Place a mat, etc. underneath to avoid causing scratches to the front (filter surface).

# SECTION 2
# SPECIFIC SERVICE INSTRUCTIONS

## 2.1 SYSTEM SETTEING

**Be sure to carry out the following operation at the end of the procedure.**

(1) Press the **[INFORMATION]** key and **[MUTING]** key simultaneously, then enter the SERVICE MODE.
(2) When the Main Menu is displayed, press **[2]** key to enter the self check mode.
(3) Turn off the power by pressing the **[POWER]** key on the remote control unit.




## 2.2 FEATURES

**DVB-T (DIGITAL TERRESTRIAL BROADCASTING)**
This TV can receive both Digital terrestrial broadcasting (DVB-T) and Analogue terrestrial broadcasting.

**D.I.S.T. (Digital Image Scaling Technology)**
This system uses line interpolation to double the number of scanning lines and achieve high resolution, flicker-free picture.

**COLOUR MANAGEMENT**
This function ensures dull colours are compensated to produce natural hues.

**PICTURE MANAGEMENT**
This function makes it easier to see the dark areas when a picture has many dark areas, and makes it easier to see the bright areas when a picture has many bright areas.

**ZOOM**
This function can change the screen size according to the picture aspect ratio.

**DIGITAL VNR**
This function cuts down the amount of noise in the original picture.

**SUPER DIGIPURE**
This function uses the latest in digital technology to give you a natural-looking picture.

**MOVIE THEATRE**
This function displays a cinema film picture more smoothly and naturally on the screen.

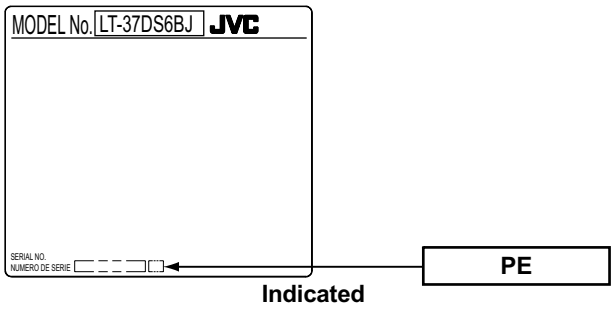
**3D CINEMA SOUND**
You can enjoy sounds with a widerambience.

## 2.3 MAIN DIFFERENCE LIST

| Item | LT-37DS6BJ | LT-37DS6BJ/P |
|---|---|---|
| DIGITAL SIGNAL PWB | ----- | ----- |

### 2.4 HOW TO IDENTIFY MODELS

**"PE" are added to the serial No. under at the Rating label.**

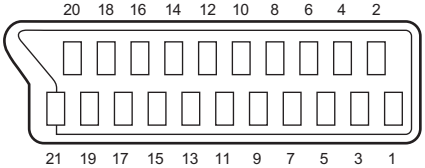



### 2.5 21-PIN EURO CONNECTOR (SCART) : EXT-1 / EXT-2

| Pin No. | Signal designation | Matching value | EXT-1 | EXT-2 |
|---|---|---|---|---|
| 1 | AUDIO R output | 500mV(rms) (Nominal), Low impedance | Used (TV OUT) | Used (LINE OUT) |
| 2 | AUDIO R input | 500mV(rms) (Nominal), High impedance | Used (R1) | Used (R2) |
| 3 | AUDIO L output | 500mV(rms) (Nominal), Low impedance | Used (TV OUT) | Used (LINE OUT) |
| 4 | AUDIO GND | | Used | Used |
| 5 | GND (B) | | Used | Used |
| 6 | AUDIO L input | 500mV(rms) (Nominal), High impedance | Used (L1) | Used (L2) |
| 7 | B input | $700mV_{(B-W)}$, 75Ω | Used | Used |
| 8 | FUNCTION SW (SLOW SW) | Low : 0V-3V<br>High : 8V-12V, High impedance | Used | Used |
| 9 | GND (G) | | Used | Used |
| 10 | SCL / T-V LINK | | Not used | Used (SCL2 / TV-LINK) |
| 11 | G input | $700mV_{(B-W)}$, 75Ω | Used | Used |
| 12 | SDA | | Not used | Used (SDA2) |
| 13 | GND (R) | | Used | Used |
| 14 | GND (YS) | | Used | Not used |
| 15 | R / C input | R : $700mV_{(B-W)}$, 75Ω<br>C : $300mV_{(P-P)}$, 75Ω | Used (R) | Used (C2/R) |
| 16 | Ys input (FAST SW) | Low : 0V-0.4V, High : 1V-3V, 75Ω | Used | Used |
| 17 | GND (VIDEO output) | | Used | Used |
| 18 | GND (VIDEO input) | | Used | Used |
| 19 | VIDEO output | $1V_{(P-P)}$ (Negative sync), 75Ω | Used (TV OUT) | Used (LINE OUT) |
| 20 | VIDEO / Y input | $1V_{(P-P)}$ (Negative sync), 75Ω | Used | Used |
| 21 | COMMON GND | | Used | Used |

(P-P= Peak to Peak, B-W= Blanking to white peak)

[Pin assignment]



## 2.6 TECHNICAL INFORMATION

### 2.6.1 LCD PANEL

This unit uses the flat type panel LCD (Liquid Crystal Display) panel that occupies as little space as possible, instead of the conventional CRT (Cathode Ray Tube), as a display unit.
Since the unit has the two polarizing filter that are at right angles to each other, the unit adopts "normally black" mode, where light does not pass through the polarizing filter and the screen is black when no voltage is applied to the liquid crystals.

#### 2.6.1.1 SPECIFICATIONS

The following table shows the specifications of this unit.

| Item | Specifications |
|---|---|
| Maximum dimensions ( W × H × D ) | 877 mm × 545 mm × 56 mm |
| Weight | 8.5 kg |
| Effective screen size | Diagonal: 949 mm (H: 826 mm × V: 467 mm) |
| Aspect ratio | 16 : 9 |
| Drive device / system | a-Si-TFT active matrix system |
| Resolution | Horizontally 1366 × Vertically 768 × RGB < W-XGA > 3147264 dots in total |
| Pixel pitch (pixel size) | Horizontally: 0.6 mm Vertically: 0.6 mm |
| Displayed colour | 16777216 colours 256 colours for R G and B |
| Brightness | 500cd/m2 |
| Contrast ratio | 800 : 1 |
| Response time | 6 ms |
| View angle | Horizontally: 170° , Vertically: 170° |
| Surface polarizer | Anti-Glare type Low reflective coat |
| Colour filter | Vertical stripe |
| Backlight | Direct-type Cold cathode fluorescent lamp × 18 |
| Power supply voltage in LCD | 5 V |
| Power supply voltage in inverter | 24 V |
| Panel interface system | LVDS (Low Voltage Differential Signaling) |

#### 2.6.1.2 PIXEL FAULT

There are three pixel faults - bright fault , dark fault and flicker fault - that are respectively defined as follows.

■ **BRIGHT FAULT**

In this pixel fault, a cell that should not light originally is lighting on and off.
For checking this pixel fault, input ALL BLACK SCREEN and find out the cell that is lighting on and off.

■ **DARK FAULT**

In this pixel fault, a cell that should light originally is not lighting or lighting with the brightness twice as brighter as originally lighting.
For checking this pixel fault, input 100% of each R/G/B colour and find out the cell that is not lighting.

■ **FLICKER FAULT**

In the pixel fault, a cell that should light originally or not light originally is flashing on and off.
For checking this pixel fault, input ALL BLACK SCREEN signal or 100% of each RGB colour and find out the cell that is flashing on and off.

### 2.6.2 MAIN CPU PIN FUNCTION [IC7501 : DIGITAL SIGNAL PWB]

| Pin | Pin name | I/O | Function | Pin | Pin name | I/O | Function |
|---|---|---|---|---|---|---|---|
| 1 | TCK | I | Test purpose | 65 | D2 | I/O | Program ROM data for main CPU |
| 2 | TMS | I | Test purpose | 66 | D12 | I/O | Program ROM data for main CPU |
| 3 | TDI | I | Test purpose | 67 | D10 | I/O | Program ROM data for main CPU |
| 4 | TDO | O | Test purpose | 68 | VSS33 | - | GND |
| 5 | P2.8 | O | Not used | 69 | VDD33 | I | 3.3V |
| 6 | P2.9 | O | Blue for OSD | 70 | D4 | I/O | Program ROM data for main CPU |
| 7 | P2.10 | O | Blue for OSD | 71 | D3 | I/O | Program ROM data for main CPU |
| 8 | P2.11 | O | Blue for OSD | 72 | D11 | I/O | Program ROM data for main CPU |
| 9 | P2.12 | O | Blue for OSD | 73 | RSTIN | I | Reset |
| 10 | P2.13 | O | Blue for OSD | 74 | POWER | O | Sleep state release for chassis CPU [Relese : L] |
| 11 | P2.14 | I | Not used | 75 | P3.1 | O | Not used |
| 12 | P2.15 | O | Request for chassis CPU communication | 76 | REMOCON | I | Remote control |
| 13 | VSS33 | - | GND | 77 | P3.3 | I | Clock for OSD |
| 14 | VDD33 | I | 3.3V | 78 | P3.4 | O | Red for OSD |
| 15 | P4.5 | O | Not used | 79 | P3.5 | O | Red for OSD |
| 16 | A20 | O | Program ROM address for main CPU | 80 | P3.6 | O | Red for OSD |
| 17 | A19 | O | Program ROM address for main CPU | 81 | P3.7 | O | Red for OSD |
| 18 | A18 | O | Program ROM address for main CPU | 82 | MTST | O | Data transmission for chassis CPU communication |
| 19 | A17 | O | Program ROM address for main CPU | 83 | MTSR | I | Data receive for chassis CPU communication |
| 20 | VSS25 | - | GND | 84 | VSS33 | - | GND |
| 21 | VDD25 | I | 2.5V | 85 | VDD33 | I | 3.3V |
| 22 | A16 | O | Program ROM address for main CPU | 86 | VSS25 | - | GND |
| 23 | A8 | O | Program ROM address for main CPU | 87 | VDD25 | I | 2.5V |
| 24 | A7 | O | Program ROM address for main CPU | 88 | TXD0 | O | Communication for adjustment |
| 25 | A9 | O | Program ROM address for main CPU | 89 | RXD0 | O | Communication for adjustment |
| 26 | A6 | O | Program ROM address for main CPU | 90 | P3.12 | O | Red for OSD |
| 27 | A5 | O | Program ROM address for main CPU | 91 | CLK | O | Clock for chassis CPU communication |
| 28 | A10 | O | Program ROM address for main CPU | 92 | P3.15 | O | Green for OSD |
| 29 | A11 | O | Program ROM address for main CPU | 93 | P5.14 | O | Green for OSD |
| 30 | A12 | O | Program ROM address for main CPU | 94 | P5.15 | O | Green for OSD |
| 31 | VSS33 | - | GND | 95 | TRIG_IN | O | Green for OSD |
| 32 | VDD33 | I | 3.3V | 96 | TRIG_OUT | O | Green for OSD |
| 33 | A4 | O | Program ROM address for main CPU | 97 | P6.2 | O | Green for OSD |
| 34 | A3 | O | Program ROM address for main CPU | 98 | P6.3 | O | $I^2C$ bus clock (for main memory) |
| 35 | A2 | O | Program ROM address for main CPU | 99 | P6.4 | I/O | $I^2C$ bus Data (for main memory) |
| 36 | A1 | O | Program ROM address for main CPU | 100 | P6.5 | O | Teletext signal select [Analog RGB : H / Digital RGB : L] |
| 37 | A0 | O | Program ROM address for main CPU | 101 | IRQ | O | Not used |
| 38 | A13 | O | Program ROM address for main CPU | 102 | VSYNC | I | Vertical sync |
| 39 | ARAS/A14 | O | Program ROM address for main CPU | 103 | HSYNC | I | Horizontal sync |
| 40 | CAS/A15 | O | Program ROM address for main CPU | 104 | COR/RSTOUT | O | Not used |
| 41 | VSS33 | - | GND | 105 | BLANK | O | Ys for OSD / Teletext |
| 42 | VDD33 | I | 3.3V | 106 | VDD33 | I | 3.3V |
| 43 | MEMCLK | O | Clock for memory | 107 | VSS33 | - | GND |
| 44 | CSSDRAM | O | Chip select for memory | 108 | XTAL1 | I | 6MHz for system clock |
| 45 | CLKEN | O | Clock enable for memory | 109 | XTAL2 | O | 6MHz for system clock |
| 46 | CSROM | O | Chip select for memory | 110 | VSSA | - | GND |
| 47 | RD | O | Read for memory | 111 | VDDA | I | 2.5V |
| 48 | UDQM | O | Control buffer of memory | 112 | R | O | R for OSD / Teletext |
| 49 | LDQM | O | Control buffer of memory | 113 | G | O | G for OSD / Teletext |
| 50 | WR | O | Write for memory | 114 | B | O | B for OSD / Teletext |
| 51 | D15 | I/O | Program ROM data for main CPU | 115 | VSSA | - | GND |
| 52 | VSS33 | - | GND | 116 | VDDA | I | 2.5V |
| 53 | VDD33 | I | 3.3V | 117 | CVBS2 | I | Video for Teletext |
| 54 | D7 | I/O | Program ROM data for main CPU | 118 | VSSA | - | GND |
| 55 | D0 | I/O | Program ROM data for main CPU | 119 | VDDA | I | 2.5V |
| 56 | D14 | I/O | Program ROM data for main CPU | 120 | CVBS1B | I | Video for Teletext |
| 57 | D8 | I/O | Program ROM data for main CPU | 121 | CVBS1A | I | Video for Teletext |
| 58 | D6 | I/O | Program ROM data for main CPU | 122 | VSSA | - | GND |
| 59 | D1 | I/O | Program ROM data for main CPU | 123 | VDDA | I | 2.5V |
| 60 | VSS33 | - | GND | 124 | KEY1 | I | Key scan data 1 [ON : H] |
| 61 | VDD33 | I | 3.3V | 125 | KEY2 | I | Key scan data 2 [ON : H] |
| 62 | D13 | I/O | Program ROM data for main CPU | 126 | MECA_SW | I | Main power ON / OFF control [ON : L] |
| 63 | D9 | I/O | Program ROM data for main CPU | 127 | P5.3 | I | Not used |
| 64 | D5 | I/O | Program ROM data for main CPU | 128 | TMODE | I | Test purpose |

### 2.6.3 SUB (CHASSIS) CPU PIN FUNCTION [IC7001 : DIGITAL SIGNAL PWB]

| Pin | Pin name | I/O | Function | Pin | Pin name | I/O | Function |
|---|---|---|---|---|---|---|---|
| 1 | LB_PRO | O | Not used | 51 | BS_TXD | O | Data transmission for digital tuner communication |
| 2 | P_MU | O | Picture muting [Muting = H] | 52 | BS_RXD | I | Data receive for digital tuner communication |
| 3 | JP_CSB | O | Not used (NC) | 53 | NC | O | Not used (NC) |
| 4 | A_MU | O | Audio muting [Muting = H] | 54 | VREF+ | I | 3.3V power supply |
| 5 | M_MU | O | Audio muting (for AUDIO OUT) [Muting = H] | 55 | PDP_TX | O | Data transmission for SUB (DRIVE) CPU communication |
| 6 | PC_SEL | O | RGB(PC) INPUT select | 56 | PDP_RX | I | Data receive for SUB (DRIVE) CPU communication |
| 7 | ON_TIMER | O | POWER INDICATOR (LED) brightness [LOW = L] | 57 | SDA0 | I/O | Data for Inter IC (serial) bus : EEP-ROM (IC7002) |
| 8 | ILA0 | O | LCD back light lighting | 58 | SCL0 | O | Clock for Inter IC (serial) bus : EEP-ROM (IC7002) |
| 9 | ILA1 | O | LCD panel overshoot refresh timing | 59 | SDA_DVI | I/O | Not used : Data for Inter IC (serial) bus for panel communication |
| 10 | ILA2 | O | Not used | 60 | SCL_DVI | O | Not used : Clock for Inter IC (serial) bus for panel communication |
| 11 | POW_LED | O | POWER LED lighting [ON = H] | 61 | AVSS | - | GND |
| 12 | WORD | O | Not used | 62 | DIGII_PHOT | I | Not used: Photo sensor for DIGITAL-IN illegal copy protection |
| 13 | MI_CK | I | Clock for main CPU communication | 63 | AGC | I | Not used |
| 14 | MI_TX | I | Data receive for main CPU communication | 64 | EXT_YS1 | I | Not used |
| 15 | MI_RX | O | Data transmission for MAIN CPU communication | 65 | EXT_YS2 | I | Not used |
| 16 | MI_REQ | O | Data request for main CPU communication [Request = L] | 66 | VDD | I | 3.3V power supply |
| 17 | VDD | I | 3.3V power supply | 67 | DIGI_PRO | O | Not used : For DIGITAL-IN (HDMI) |
| 18 | FOSC | O | Not used (NC) | 68 | GCR_RST | O | Not used (NC) |
| 19 | VSS | - | GND | 69 | GR_ON | O | Not used (NC) |
| 20 | X1 | I | Not used : Low speed oscillatior | 70 | SYNC_SEL | O | Not used : Sync select for digital tuner |
| 21 | X0 | O | Not used : Low speed oscillatior | 71 | NC | O | Not used (NC) |
| 22 | VDD | I | 3.3V power supply | 72 | NC | O | Not used (NC) |
| 23 | OSC1 | I | System clock osillation (crystal) : 16MHz | 73 | SBD5 | I/O | Not used : Data for writing on board (connect CN01P : for Frash ROM type) |
| 24 | OSC0 | O | System clock osillation (crystal) : 16MHz | 74 | SBT5 | I | Not used : Clock for writing on board (connect CN01P : for Frash ROM type) |
| 25 | MODE | I | Single chip mode | 75 | NMI | I | 3.3V power supply |
| 26 | BS1.5CTL | O | Digital tuner power / reset control | 76 | COMP | I | Not used : AV COMPULINK III control |
| 27 | A92RES | O | Reset for IC1001(3D YC SEP / COLOUR DEMODULAT) [Reset = H] | 77 | REMO | I | Remote control |
| 28 | BS_RST | O | Reset for Digital tuner power / reset control | 78 | VSYNC | I | V. sync pulse |
| 29 | LIP_RST | O | Reset for Sound delay (Lip sync) | 79 | WAKE | I | Reset for sub(chassis) CPU |
| 30 | SOFT_OFF | O | Not used | 80 | POWERGOOD | I | Power error detection [NG = H] |
| 31 | VMUTE | I | Picture muting request from digital tuner | 81 | NC | O | Not used (NC) |
| 32 | VOUTENB | O | Video cutoff for digital tuner | 82 | RST | I | Reset for MAIN CPU [Reset = L] |
| 33 | MDR_CON | I | Not used: System cable connection monitor for PDP | 83 | VDD | I | 3.3V power supply |
| 34 | AVDD | I | 3.3V power supply | 84 | SCL3A | O | Clock for Inter IC (serial) bus control |
| 35 | BS_POW | O | Digital tuner power control | 85 | SDA3A | I/O | Data for Inter IC (serial) bus control |
| 36 | DsyncSW2 | O | Sync select for DIGITAL-IN [Cotrolled with 99-pin] | 86 | SCL3B | O | Clock for Inter IC (serial) bus control |
| 37 | LB_POW | O | Power control for low bias line | 87 | SDA3B | I/O | Data for Inter IC (serial) bus control |
| 38 | NC | O | Not used (NC) | 88 | DIGI_SYNCSEL | O | Not used |
| 39 | HOTPLUG | I | Not used : Video communiation monitor for receiver unit (PDP) | 89 | DIGI_LRSW | O | Not used : For DIGITAL-IN (HDMI) |
| 40 | MECA_SW | I | Mechanical monitor for POWER switch [Push = L] | 90 | DIGI_INT | I | Not used : Reset for HDMI process [Reset = L ] |
| 41 | MAIN_POW | O | Main power control [ON = L] | 91 | DVI_RST | O | Not used : Reset for DVI format conversion |
| 42 | MSP_RST | O | AUDIO OUT output mode select [VARIABLE = L] | 92 | VSS | - | GND |
| 43 | VREF- | I | Not used | 93 | SCL5055 | O | Clock for Inter IC (serial) bus : JCC5055 (DIST process) |
| 44 | AFT2 | I | Not used : AFT voltage for sub tuner | 94 | VFORMATSEL | O | Digital tuner clock control |
| 45 | AFT1 | I | AFT voltage for VHF/UHF tuner | 95 | SDA5055 | I/O | Data for Inter IC (serial) bus : JCC5055 (DIST process) |
| 46 | KEY2 | I | Key scan data for front switch (MENU/CH+/CH-) | 96 | OSD_MODE_SEL | O | Not used : OSD mode select |
| 47 | KEY1 | I | Key scan data for front switch (VOL+/VOL-) | 97 | NC | O | Not used (NC) |
| 48 | NC | O | Not used (NC) | 98 | 15K/OTH | O | Main video select [Fixed = H] |
| 49 | NC | O | Not used (NC) | 99 | DsyncSW1 | O | Not used : Sync select for DIGITAL-IN [Cotrolled with 36-pin] |
| 50 | AC_IN | I | AC power pulse for timer clock | 100 | 57 BUSY | I | Busy monitor for JCC5057 (New DIST process) |

# SECTION 3
# DISASSEMBLY

## 3.1 DISASSEMBLY PROCEDURE

**CAUTION AT DISASSEMBLY:**

- **Be sure to perform the SYSTEM SETTEING, at the end of the procedure.**
- Make sure that the power cord is disconnected from the outlet.
- Pay special attention not to break or damage the parts.
- When removing each board, remove the connectors as required. Taking notes of the connecting points (connector numbers) makes service procedure manageable.
- Make sure that there is no bent or stain on the connectors before inserting, and firmly insert the connectors.

### 3.1.1 REMOVING THE STAND (Fig.1)

(1) Remove the 1 screw **[A]**, then remove the STAND COVER.
(2) Remove the 4 screws **[B]**, then remove the STAND.

### 3.1.2 REMOVING THE REAR COVER (Fig.1)

- Remove the STAND.
  (1) Remove the JACK COVER (L/R).
  (2) Remove the 10 screws **[C]**, the 3 screws **[D]**, and the 2 screws **[E]**.
  (3) Remove the REAR COVER.

### 3.1.3 REMOVING THE REGULATOR PWB (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
  (1) Remove the 4 screws **[F]**, then remove the FAN BRACKET.
  (2) Remove the 1 screw **[G]**, then remove the POWER CORD HOLDER.
  (3) Remove the POWER CORD from the POWER PWB.
  (4) Remove the REGULATOR PWB.

### 3.1.4 REMOVING THE POWER PWB (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
- Remove the FAN BRACKET.
  (1) Remove the 4 screw **[H]**, then remove the POWER PWB.

### 3.1.5 REMOVING THE ANALOG SYGNAL PWB (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
- Remove the FAN BRACKET.
  (1) Remove the 3 screws **[J]**, then remove the TERMINAL BASE.
  (2) Remove the 5 screws **[K]** and 1screw **[L]**, then remove the ANALOG SIGNAL PWB.

### 3.1.6 REMOVING THE FRONT CONTROL PWB (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
  (1) Remove the 3 screws **[M]**, then remove the CONTROL ASSY with the FRONT CONTROL PWB.
  (2) Remove the FRONT CONTROL PWB.

### 3.1.7 REMOVING THE RECEIVER PWB (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
  (1) Remove the 3 screws **[N]** and the 1 screw **[P]**, then remove the TUNER BASE.
  (2) Remove the 2 screws **[Q]**, then remove the RECEIVER PWB.

### 3.1.8 REMOVING THE CONNECTOR PWB (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
- Remove the TOP SHIELD CASE.
  (1) Remove the 4 screws **[S]**, then remove the RECEIVER PWB BRACKET.
  (2) Remove the 1 screw **[T]**, then remove the CONNECTOR PWB.

### 3.1.9 REMOVING THE DIGITAL TUNER UNIT (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
- Remove the TUNER BASE.
  (1) Remove the 7 screws **[U]** and the 3 screws **[V]**, then remove the SHIELD COVER.
  (2) Remove the 2 screws **[W]** , then remove the SIDE SHIELD CASE.
  (3) Remove the 5 screws **[X]**, then remove the DIGITAL TUNER UNIT.

### 3.1.10 REMOVING THE DIGITAL SIGNAL PWB (Fig.1)

- Remove the STAND.
- Remove the REAR COVER.
- Remove the TUNER BASE.
- Remove the DIGITAL TUNER UNIT.
  (1) Remove the 5 screws **[Y]**, then remove the DIGITAL BRACKET.
  (2) Remove the DIGITAL SIGNALPWB.

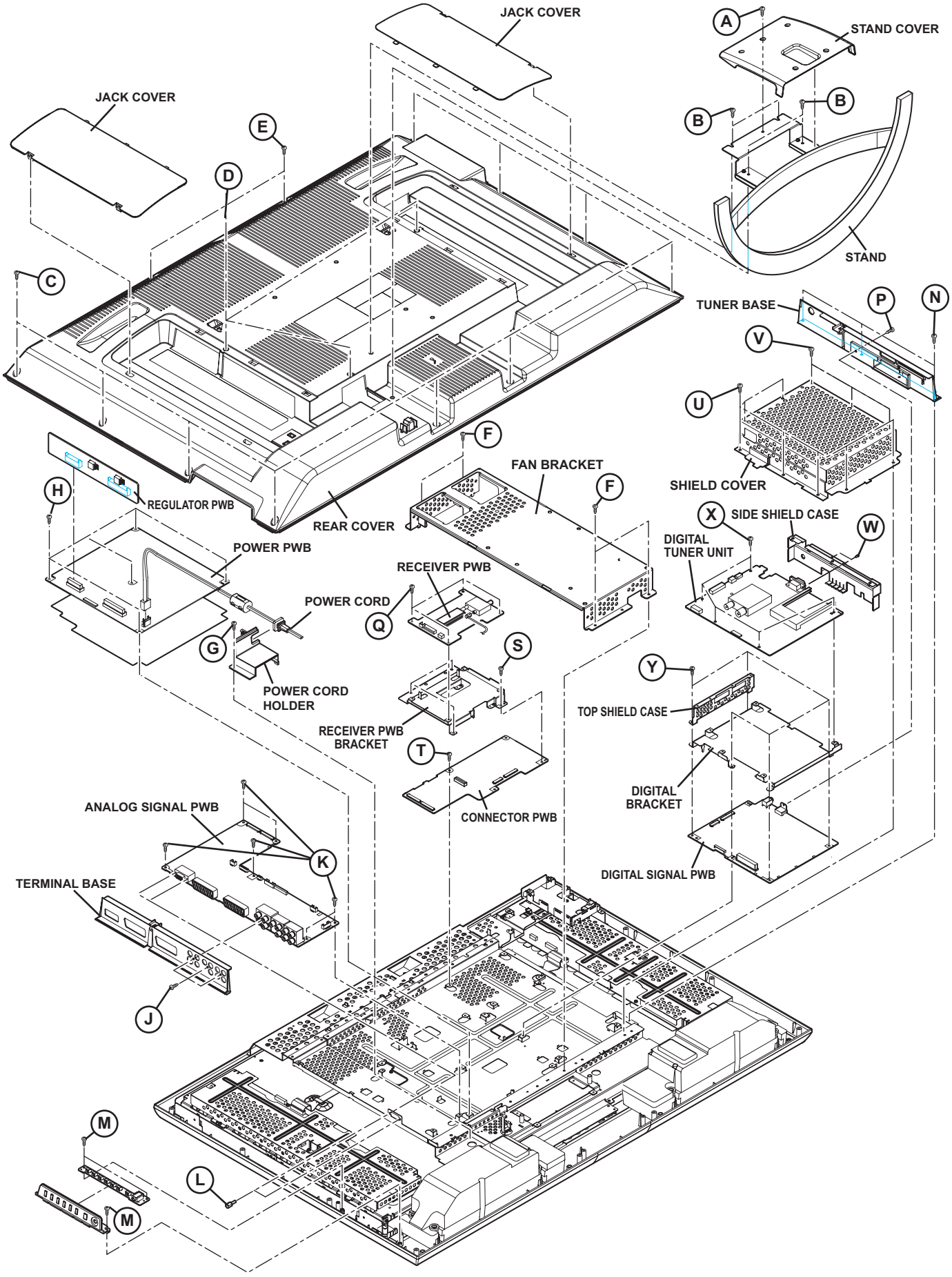

JACK COVER
JACK COVER
A
STAND COVER
B
B
E
D
C
STAND
TUNER BASE
P
N
V
U
SHIELD COVER
F
FAN BRACKET
F
H
REGULATOR PWB
REAR COVER
X
SIDE SHIELD CASE
W
DIGITAL
TUNER UNIT
POWER PWB
RECEIVER PWB
POWER CORD
Q
G
S
Y
POWER CORD
HOLDER
TOP SHIELD CASE
RECEIVER PWB
BRACKET
T
CONNECTOR PWB
DIGITAL
BRACKET
ANALOG SIGNAL PWB
K
DIGITAL SIGNAL PWB
TERMINAL BASE
J
M
L
M

Fig.1

### 3.1.11 REMOVING THE SPEAKER (Fig.2)

- Remove the STAND.
- Remove the REAR COVER.
  (1) Remove the 6 screws **[A]**, then remove the SPEAKER (L /R).

**NOTE:**

- Since the speaker is attached in a certain direction, attach the speaker in the same correct direction as it has been attached.
- When the speaker is decomposed, the performance cannot be kept.

### 3.1.12 REMOVING THE FRONT LED PWB (Fig.2)

- Remove the STAND.
- Remove the REAR COVER.
- Remove the FAN BRACKET.
  (1) Remove the 2 screws **[B]**, then remove the FRONT LED PWB.

### 3.1.13 REMOVING THE LCD PANEL UNIT (Fig.2)

- Remove the STAND.
- Remove the REAR COVER.
- Remove the FAN BRACKET.
  (1) Remove the 2 screws **[C]**, then remove the MAIN BASE.
  (2) Remove the 3 screws **[D]**, the 2 screws **[E]** and the 1 screw **[F]**, then remove the TOP FRAME.
  (3) Remove the 2 screws **[G]** and the 2 screws **[H]**, then remove the BOTTOM FRAME.
  (4) Remove the LCD PANEL UNIT from the FRONT PANEL.

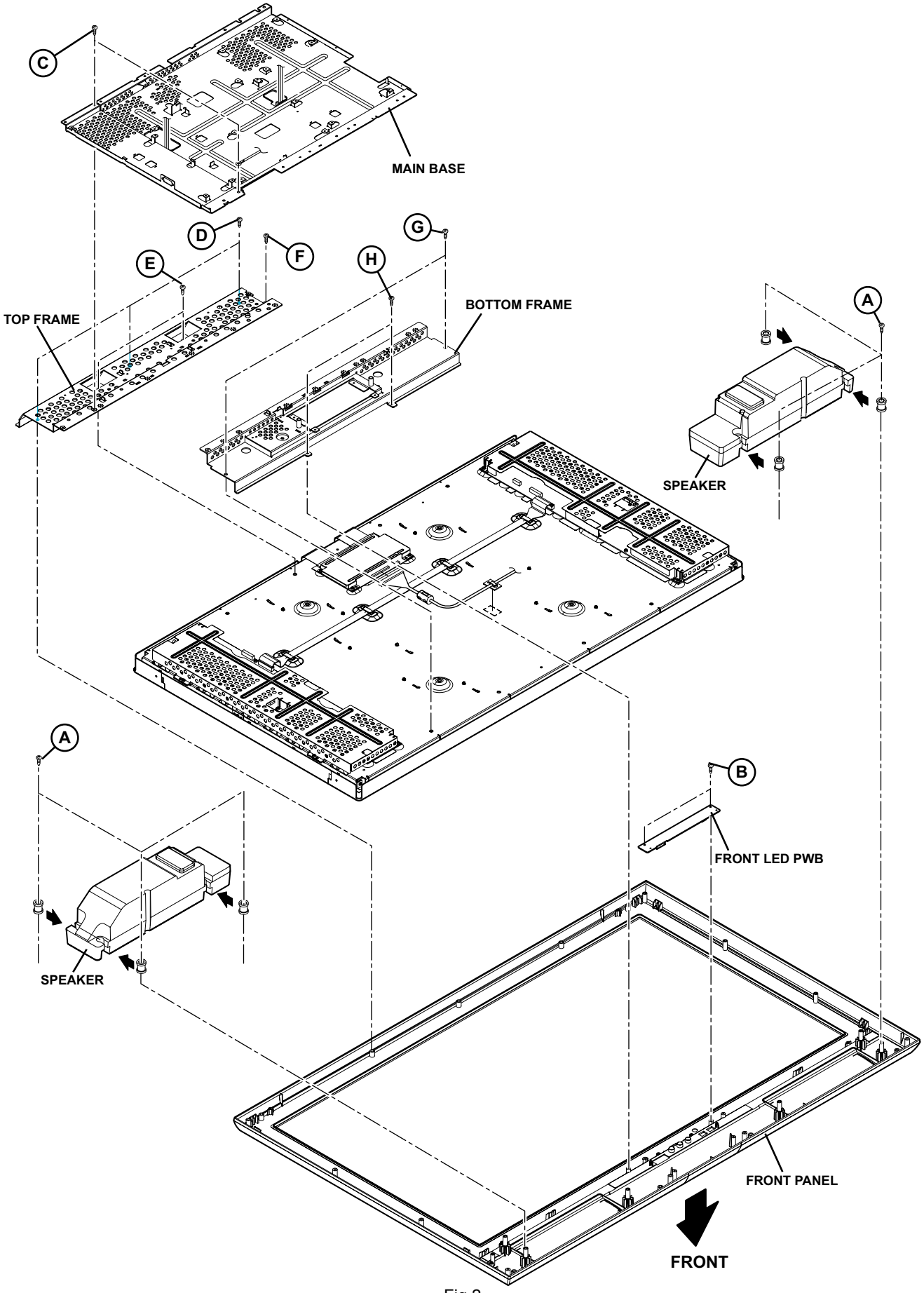

C
MAIN BASE
D
F
G
E
H
TOP FRAME
BOTTOM FRAME
A
SPEAKER
A
B
FRONT LED PWB
SPEAKER
FRONT PANEL
FRONT

Fig.2

### 3.2 MEMORY IC REPLACEMENT

- This model uses the memory IC.
- This memory IC stores data for proper operation of the video and drive circuits.
- When replacing, be sure to use an IC containing this (initial value) data.

#### 3.2.1 MEMORY IC REPLACEMENT PROCEDURE

**1. Power off**
Switch off the power and disconnect the power plug from the AC outlet.

**2. Replace the memory IC**
Be sure to use the memory IC written with the initial setting values.

**3. Power on**
Connect the power plug to the AC outlet and switch on the power.

**4. Receiving channel setting**
Refer to the OPERATING INSTRUCTIONS and set the receive channels (Channels Preset) as described.

**5. User setting**
Check the user setting items according to the given in page later. Where these do not agree, refer to the OPERATING INSTRUCTIONS and set the items as described.

**6. SERVICE MODE setting**
Verify what to set in the SERVICE MODE, and set whatever is necessary (Fig.1). Refer to the SERVICE ADJUSTMENT for setting.

#### 3.2.2 SERVICE MODE SETTING

**■SERVICE MODE SCREEN**

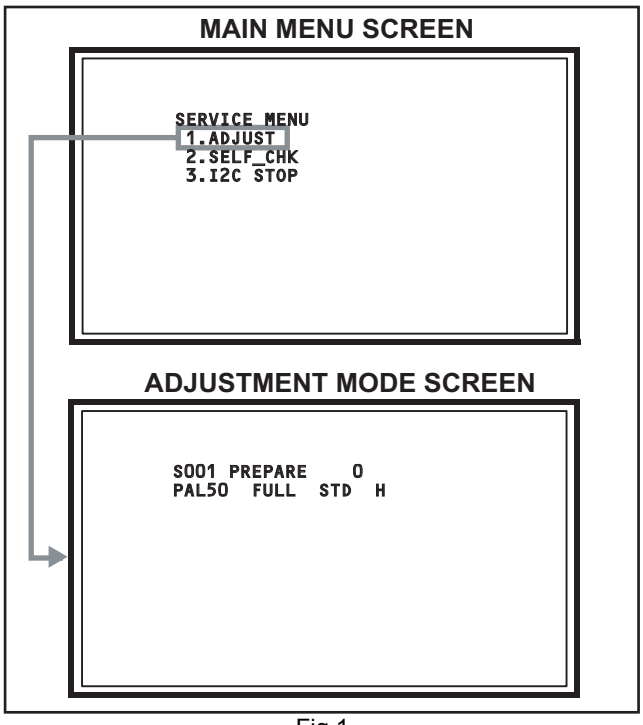



Fig.1

**■SETTING ITEM**

| Setting items | Settings | Item No. |
|---|---|---|
| Video system setting | Adjust | S001 - S039 |
| Audio system setting | Fixed | T001 - T010 |
| Panel control system setting | Fixed | P001 - P010 |
| Drive system setting | Fixed | D001 - D187 |
| Main CPU system setting | Fixed | Z001 - Z010 |

### 3.2.3 SETTINGS OF FACTORY SHIPMENT

#### 3.2.3.1 BUTTON OPERATION

| Setting item | Setting position |
|---|---|
| POWER | Off |
| CHANNEL | PR1 |
| VOLUME | 10 |
| TV/AV | TV |

#### 3.2.3.2 REMOTE CONTROL DIRECT OPERATION

| Setting item | Setting position |
|---|---|
| CHANNEL | PR1 |
| VOLUME | 10 |
| ZOOM | PANORAMIC |
| 3D SOUND | OFF |

#### 3.2.3.3 REMOTE CONTROL MENU OPERATION

**(1) PICTURE**

| Setting item | | Setting position |
|---|---|---|
| PICTURE MODE | | BRIGHT |
| COLOUR TEMP. | | COOL |
| **FEATURES** | | |
| DIGITAL VNR | | AUTO (LOW) |
| Super DigiPure | | AUTO |
| MOVIE THEATRE | | AUTO |
| COLOUR MANAGEMENT | | ON |
| PICTURE MANAGEMENT | | ON |
| COLOUR SYSTEM | TV | Depends on PR/CH |
| | EXT | AUTO |
| 4:3 AUTO ASPECT | | PANORAMIC |

**(2) SOUND**

| Setting item | Setting position |
|---|---|
| STEREO / I•II | Stereo sound |
| BASS | Centre |
| TREBLE | Centre |
| BALANCE | Centre |
| 3D SOUND | OFF |
| A.H.B. | ON |
| BBE | ON |

**(4) FEATURES**

| Setting item | Setting position |
|---|---|
| SLEEP TIMER | OFF |
| CHILD LOCK | ID NO.0000, All CH off |
| APPEARANCE | TYPE D |
| BLUE BACK | ON |
| FAVOURITE SETTING | Reset |
| ILLUMINATION | BRIGHT |

**(5) SET UP**

| Setting item | Setting position |
|---|---|
| AUTO PROGRAM | TV channel automatically set |
| EDIT/MANUAL | PRESET CH only |
| LANGUAGE | ENGLISH |
| DECODER (EXT-2) | OFF |
| COMPONENT AUTO SELECT | ON |
| HDMI SETTING | AUTO |
| ATTENUATOR | OFF |
| **EXT SETTING** | |
| S-IN | BLANK |
| ID | BLANK |
| DUBBING | EXT-1 → EXT-2 |

**(6) DTV**

| Setting item | Setting position |
|---|---|
| **Timers** | |
| Name | **** |
| Start | 00:00 |
| End | 00:00 |
| Date | 01/01/2004 |
| Mode | Inactive |
| **Configuration** | |
| Audio Language | English |
| Subtitle | English |
| Favourite Mode | off |
| Receiver Upgrade | V.*.* |
| Menu Lock | Disabled |

### 3.3 REPLACEMENT OF CHIP COMPONENT

#### 3.3.1 CAUTIONS

(1) Avoid heating for more than 3 seconds.
(2) Do not rub the electrodes and the resist parts of the pattern.
(3) When removing a chip part, melt the solder adequately.
(4) Do not reuse a chip part after removing it.

#### 3.3.2 SOLDERING IRON

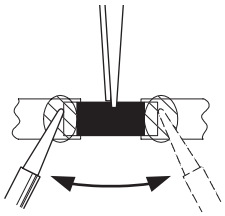
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

#### 3.3.3 REPLACEMENT STEPS

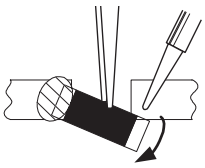
**1. How to remove Chip parts**

**[Resistors, capacitors, etc.]**

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



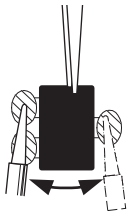
(2) Shift with the tweezers and remove the chip part.



**[Transistors, diodes, variable resistors, etc.]**

(1) Apply extra solder to each lead.


(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

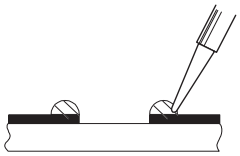


**NOTE :**
After removing the part, remove remaining solder from the pattern.

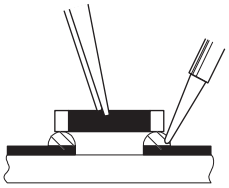
**2. How to install Chip parts**

**[Resistors, capacitors, etc.]**

(1) Apply solder to the pattern as indicated in the figure.

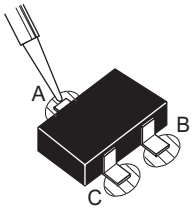


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

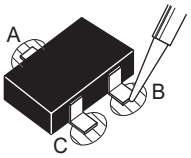


**[Transistors, diodes, variable resistors, etc.]**

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.




(4) Then solder leads **B** and **C**.



# SECTION 4
# ADJUSTMENT

## 4.1 ADJUSTMENT PREPARATION

(1) **The adjustment using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.**
(2) Make sure that connection is correctly made AC to AC power source.
(3) Turn on the power of the TV and measuring instruments for warming up for at least 30 minutes before starting adjustments.
(4) If the receive or input signal is not specified, use the most appropriate signal for adjustment.
(5) Never touch the parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.

## 4.2 PRESET SETTING BEFORE ADJUSTMENTS

Unless otherwise specified in the adjustment items, preset the following functions with the REMOTE CONTROL UNIT.

| Setting item | Settings position |
|---|---|
| PICTURE MODE | STANDARD |
| PICTURE adjustments | Centre |
| COLOUR TEMP. | NORMAL |
| DIGITAL VNR | AUTO (LOW) |
| Super DigiPure | AUTO |
| MOVIE THEATRE | AUTO |
| COLOUR MANAGEMENT | ON |
| PICTURE MANAGEMENT | ON |
| SOUND adjustments | Centre |
| BBE | OFF |
| 3D SOUND | OFF |
| A.H.B | OFF |
| ZOOM | FULL |

## 4.3 MEASURING INSTRUMENT AND FIXTURES

- Oscilloscope
- Signal generator (Pattern generator)
  [PAL / 625i / 625p / 1125i(50Hz)]
- Remote control unit

## 4.4 ADJUSTMENT ITEMS

■ **VIDEO CIRCUIT**

- 625i A-D OFFSET adjustment
- 1125i(50Hz) BRIGHTNESS adjustment
- 1125i(50Hz) A-D OFFSET adjustment
- SUB SCREEN A-D OFFSET adjustment
- WHITE BALANCE (HIGH LIGHT) adjustment

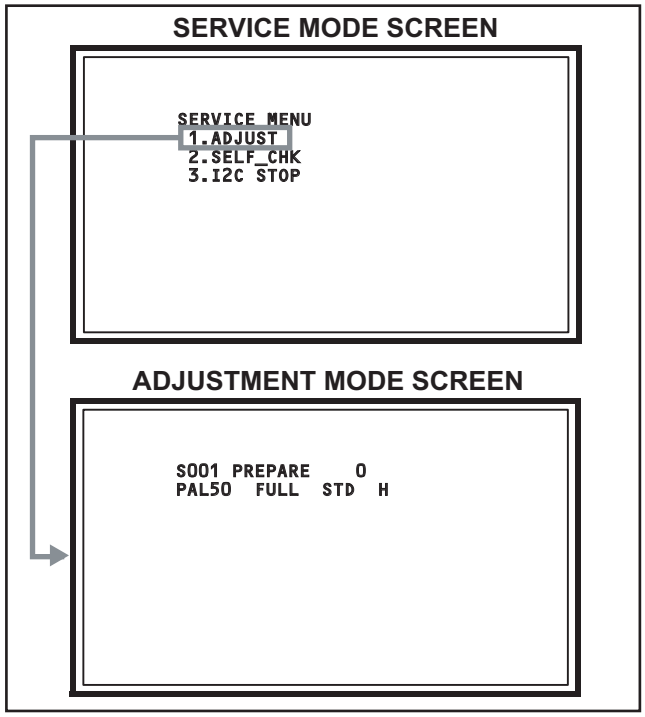
## 4.5 BASIC OPERATION OF SERVICE MODE

### 4.5.1 HOW TO ENTER THE SERVICE MODE

(1) Press **[INFORMATION]** key and **[MUTING]** key on the remote control unit simultaneously to enter the SERVICE MODE SCREEN.
(2) In the SERVICE MENU, press the **[1]** key to display ADJUSTMENT MODE SCREEN.

**NOTE:**

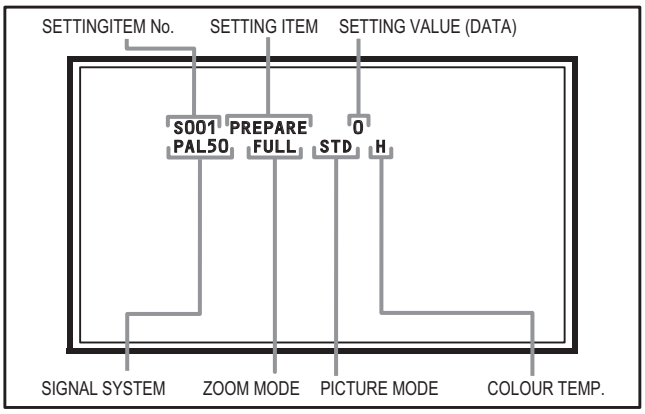
- Before entering the SERVICE MODE, confirm that the setting of VCR/TV/DVD switch is at the "**TV**" side. If the switches have not been properly set, you cannot enter the SERVICE MODE.
- When a number key other than the **[1]** key is pressed in the SERVICE MODE SCREEN, the other relevant screen may be displayed.
  This is not used in the adjustment procedure. Press the **[MENU]** key to return to the SERVICE MODE SCREEN.




### 4.5.2 HOW TO EXIT THE SERVICE MODE

Press the **[MENU]** key to exit the Service mode.

### 4.5.3 DESCRIPTION OF STATUS DISPLAY




**(1) SIGNAL SYSTEM**

The signal displayed on the screen is displayed.

| | |
|---|---|
| PAL50 | : PAL50Hz (Composite / S-video) |
| PAL60 | : PAL60Hz (Composite / S-video) |
| SECAM | : SECAM |
| NTSC3 | : NTSC3.58 |
| NTSC4 | : NTSC4.43 |
| 525I | : 525i (Component) |
| 525P | : 525p |
| 625I | : 625i (Component) |
| 625P | : 625p |
| 1125I5 | : 1125i 50Hz |
| 1125I6 | : 1125i 60Hz |
| RGB5 | : RGB 525i |
| RGB6 | : RGB 625i |
| PCVGA | : PC (VGA) |
| PCXGA | : PC (XGA) |
| H525I | : HDMI 525i |
| H525P | : HDMI 525p |
| H625I | : HDMI 625i |
| H625P | : HDMI 625p |
| H750P | : HDMI 750p |
| H125I5 | : HDMI 1125i 50Hz |
| H125I6 | : HDMI 1125i 60Hz |

**(2) ZOOM MODE**

State of the SCREEN SIZE or MULTI PICTURE is displayed.

**SINGLE SCREEN**

| | |
|---|---|
| FULL | : FULL |
| PANO | : PANORAMIC |
| 1609 | : 16:9 ZOOM |
| 1609S | : 16:9 ZOOM SUBTITLE |
| 1409 | : 14:9 ZOOM |
| REGU | : REGULAR |

**MULTI SCREEN**

| | |
|---|---|
| M2 | : 2-pictures multi |
| M12 | : 12-pictures multi |

**(3) PICTURE MODE**

| | |
|---|---|
| STD | : STANDARD |
| BRI | : BRIGHT |
| SOFT | : SOFT |

**(4) COLOUR TEMP.**

| | |
|---|---|
| H | : COOL |
| M | : NORMAL |
| L | : WARM |

**(5) SETTING ITEM NAME**

Setting item name are displayed. The setting item numbers to be displayed are listed below.

| Item No. | Setting item |
|---|---|
| S001 to S039 | Video system setting |
| T001 to T010 | Audio system setting |
| P001 to P010 | Panel control system setting |
| D001 to D187 | Drive system setting |
| Z001 to Z010 | Main CPU system setting |

**(6) SETTING ITEM NO.**

Setting item numbers are displayed. For the setting item names to be displayed, refer to "INITIAL SETTING VALUES IN THE SERVICE MODE".

**(7) SETTING VALUE (DATA)**

The SETTING VALUE is displayed.

### 4.5.4 CHANGE AND MEMORY OF SETTING VALUE

**SELECTION OF SETTING ITEM**

- **[FUNCTION ▲/▼]** key.
  For scrolling up / down the setting items.

S001... ↔ T001... ↔ P001... ↔ D001... ↔ Z001...

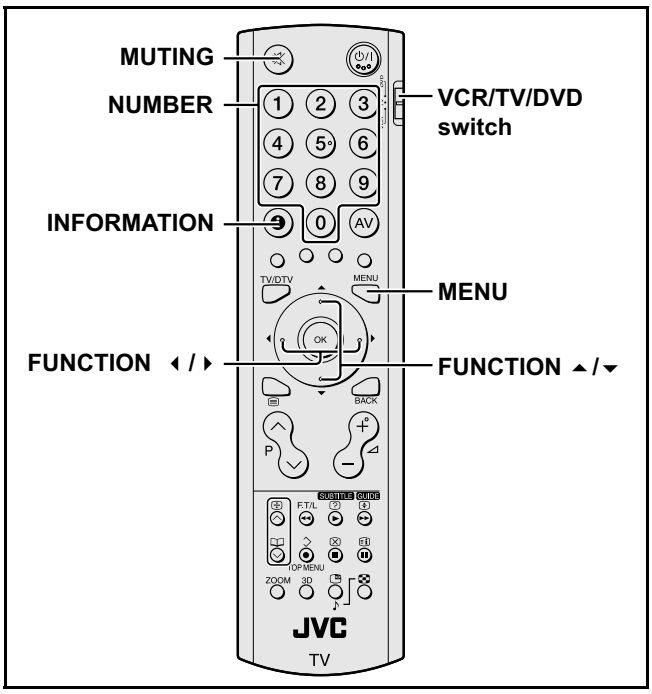
**CHANGE OF SETTING VALUE (DATA)**

- **[FUNCTION ◀ / ▶]** key.
  For scrolling up / down the setting values.

**MEMORY OF SETTING VALUE (DATA)**

Changed setting value is memorized by pressing **[MUTING]** key.

### 4.5.5 SERVICE MODE SELECT KEY LOCATION



### 4.6 INITIAL SETTING VALUES IN THE SERVICE MODE

- Perform fine-tuning based on the "initial values" using the remote control when in the Service mode.
- The "initial values" serve only as an indication rough standard and therefore the values with which optimal display can be achieved may be different from the default values. But, don't change the values that are not written in "ADJUSTMENT PROCEDURE". They are fixed values.

#### 4.6.1 VIDEO SYSTEM SETTING

| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| S001 | PREPARE | 0 - 31 | 0 |
| S002 | NTSC BL | 0 - 15 | 0 |
| S003 | NTSC CNT | 0 - 255 | 53 |
| S004 | NT CR OF | 0 - 15 | 6 |
| S005 | NT CB OF | 0 - 15 | 6 |
| S006 | 525i BL | 0 - 15 | 0 |
| S007 | 525i CNT | 0 - 255 | 53 |
| S008 | 5i CB OF | 0 - 15 | 0 |
| S009 | 5i CR OF | 0 - 15 | 0 |
| S010 | 5i CR GN | 0 - 15 | 6 |
| S011 | 5i CB GN | 0 - 15 | 6 |
| S012 | HD BL | 0 - 63 | 61 |
| S013 | HD CB OF | 0 - 63 | 59 |
| S014 | HD CR OF | 0 - 63 | 55 |
| S015 | RT CONT | 0 - 15 | 7 |
| S016 | RT CB OF | 0 - 15 | 6 |
| S017 | RT CR OF | 0 - 15 | 6 |
| S018 | RT CL GA | 0 - 15 | 1 |
| S019 | PC CL MB | 0 - 7 | 0 |
| S020 | PC CL LB | 0 - 31 | 0 |
| S021 | PC CL MR | 0 - 71 | 0 |
| S022 | PC CL LR | 0 - 31 | 0 |
| S023 | (Not display) | 0 - 255 | 0 |
| S024 | (Not display) | 0 - 255 | 0 |
| S025 | (Not display) | 0 - 255 | 0 |
| S026 | (Not display) | 0 - 255 | 0 |
| S027 | (Not display) | 0 - 255 | 0 |
| S028 | (Not display) | 0 - 255 | 0 |
| S029 | (Not display) | 0 - 255 | 0 |
| S030 | R DRIVE | 0 - 255 | 133 |
| S031 | G DRIVE | 0 - 255 | 132 |
| S032 | B DRIVE | 0 - 255 | 109 |
| S033 | (Not display) | 0 - 255 | 0 |
| S034 | (Not display) | 0 - 255 | 0 |
| S035 | (Not display) | 0 - 255 | 0 |
| S036 | (Not display) | 0 - 255 | 0 |
| S037 | (Not display) | 0 - 255 | 0 |
| S038 | (Not display) | 0 - 255 | 0 |
| S039 | ILA COM | 0 - 1 | 0 |

#### 4.6.2 AUDIO SYSTEM SETTING (*Fixed values)

| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| T001 | IN LEVEL | 0 - 255 | 0 |
| T002 | LOW SEP | 0 - 255 | 0 |
| T003 | HIGH SEP | 0 - 255 | 0 |
| T004 | AFC | 0 - 255 | 0 |
| T005 | (Not display) | 0 - 255 | 0 |
| T006 | ATT V ON | 0 - 1 | 0 |
| T007 | ATT U ON | 0 - 1 | 0 |
| T008 | ATT C ON | 0 - 1 | 0 |
| T009 | (Not display) | 0 - 255 | 0 |
| T010 | (Not display) | 0 - 255 | 0 |

#### 4.6.3 PANEL CONTOROL SYSTEM SETTING (*Fixed values)

| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| P001 | TM HOR H | 00 - FF | 00 |
| P002 | TM HOR L | 00 - FF | 00 |
| P003 | TM MIN | 00 - FF | 00 |
| P004 | TEMP0 | 0 - 255 | 0 |
| P005 | (Not display) | 0 - 255 | 0 |
| P006 | (Not display) | 0 - 255 | 0 |
| P007 | (Not display) | 0 - 255 | 0 |
| P008 | (Not display) | 0 - 255 | 0 |
| P009 | (Not display) | 0 - 255 | 0 |
| P010 | (Not display) | 0 - 255 | 0 |

#### 4.6.4 DRIVE SYSTEM SETTING (*Fixed values)

| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| D001 | SLV GN | 00 - 3F | 20 |
| D002 | SLVH GN | 00 - 3F | 20 |
| D003 | SLH GN | 00 - 3F | 20 |
| D004 | SLV Pf | 00 - 03 | 01 |
| D005 | SLH Pf H | 00 - 01 | 01 |
| D006 | SLH Pf L | 00 - 03 | 01 |
| D007 | SL EGCON | 00 - 3F | 08 |
| D008 | SL EGONF | 00 - 01 | 01 |
| D009 | SL CRGON | 00 - 3F | 03 |
| D010 | SL CRGON | 00 - 01 | 01 |
| D011 | SL ON OF | 00 - 01 | 01 |
| D012 | SV GN | 00 - 3F | 0D |
| D013 | SVH GN | 00 - 3F | 16 |
| D014 | SH GN | 00 - 3F | 16 |
| D015 | SV Pf | 00 - 03 | 01 |
| D016 | SV PfH | 00 - 01 | 01 |
| D017 | SV PfL | 00 - 03 | 01 |
| D018 | SYL CON | 00 - 3F | 20 |
| D019 | SYL CONF | 00 - 01 | 01 |

| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| D020 | SYH CON | 00 - 3F | 10 |
| D021 | SYH CONF | 00 - 01 | 01 |
| D022 | SC CON | 00 - 3F | 1A |
| D023 | SC CNONF | 00 - 01 | 01 |
| D024 | SPM BLC | 00 - 3F | 03 |
| D025 | SPM BLCO | 00 - 01 | 01 |
| D026 | SLIM | 00 - 3F | 34 |
| D027 | SLIMONF | 00 - 01 | 01 |
| D028 | SCRG | 00 - 3F | 04 |
| D029 | SRGONF | 00 - 01 | 01 |
| D030 | S ONF | 00 - 01 | 01 |
| D031 | pb GN | 00 - 3F | 15 |
| D032 | pb PfH | 00 - 01 | 01 |
| D033 | pb PfL | 00 - 03 | 00 |
| D034 | pb CRG | 00 - 3F | 04 |
| D035 | pb CRGON | 00 - 01 | 01 |
| D036 | pb ONF | 00 - 01 | 01 |
| D037 | pr GN | 00 - 3F | 15 |
| D038 | pr PfH | 00 - 01 | 01 |
| D039 | pr PfL | 00 - 03 | 00 |
| D040 | pr CRG | 00 - 3F | 05 |
| D041 | pr CRGON | 00 - 01 | 01 |
| D042 | pr ONF | 00 - 01 | 01 |
| D043 | ENH ONF | 00 - 01 | 01 |
| D044 | (Not display) | 00 - FF | 00 |
| D045 | (Not display) | 00 - FF | 00 |
| D046 | (Not display) | 00 - FF | 00 |
| D047 | (Not display) | 00 - FF | 00 |
| D048 | (Not display) | 00 - FF | 00 |
| D049 | (Not display) | 00 - FF | 00 |
| D050 | (Not display) | 00 - FF | 00 |
| D051 | (Not display) | 00 - FF | 00 |
| D052 | (Not display) | 00 - FF | 00 |
| D053 | (Not display) | 00 - FF | 00 |
| D054 | (Not display) | 00 - FF | 00 |
| D055 | (Not display) | 00 - FF | 00 |
| D056 | (Not display) | 00 - FF | 00 |
| D057 | (Not display) | 00 - FF | 00 |
| D058 | (Not display) | 00 - FF | 00 |
| D059 | (Not display) | 00 - FF | 00 |
| D060 | (Not display) | 00 - FF | 00 |
| D061 | (Not display) | 00 - FF | 00 |
| D062 | (Not display) | 00 - FF | 00 |
| D063 | (Not display) | 00 - FF | 00 |
| D064 | (Not display) | 00 - FF | 00 |
| D065 | (Not display) | 00 - FF | 00 |
| D066 | (Not display) | 00 - FF | 00 |
| D067 | (Not display) | 00 - FF | 00 |
| D068 | (Not display) | 00 - FF | 00 |
| D069 | (Not display) | 00 - FF | 00 |

| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| D070 | (Not display) | 00 - FF | 00 |
| D071 | (Not display) | 00 - FF | 00 |
| D072 | (Not display) | 00 - FF | 00 |
| D073 | (Not display) | 00 - FF | 00 |
| D074 | (Not display) | 00 - FF | 00 |
| D075 | (Not display) | 00 - FF | 00 |
| D076 | (Not display) | 00 - FF | 00 |
| D077 | (Not display) | 00 - FF | 00 |
| D078 | (Not display) | 00 - FF | 00 |
| D079 | (Not display) | 00 - FF | 00 |
| D080 | (Not display) | 00 - FF | 00 |
| D081 | (Not display) | 00 - FF | 00 |
| D082 | (Not display) | 00 - FF | 00 |
| D083 | (Not display) | 00 - FF | 00 |
| D084 | (Not display) | 00 - FF | 00 |
| D085 | (Not display) | 00 - FF | 00 |
| D086 | (Not display) | 00 - FF | 00 |
| D087 | (Not display) | 00 - FF | 00 |
| D088 | (Not display) | 00 - FF | 00 |
| D089 | (Not display) | 00 - FF | 00 |
| D090 | (Not display) | 00 - FF | 00 |
| D091 | (Not display) | 00 - FF | 00 |
| D092 | (Not display) | 00 - FF | 00 |
| D093 | (Not display) | 00 - FF | 00 |
| D094 | (Not display) | 00 - FF | 00 |
| D095 | (Not display) | 00 - FF | 00 |
| D096 | (Not display) | 00 - FF | 00 |
| D097 | (Not display) | 00 - FF | 00 |
| D098 | (Not display) | 00 - FF | 00 |
| D099 | (Not display) | 00 - FF | 00 |
| D100 | (Not display) | 00 - FF | 00 |
| D101 | (Not display) | 00 - FF | 00 |
| D102 | (Not display) | 00 - FF | 00 |
| D103 | (Not display) | 00 - FF | 00 |
| D104 | (Not display) | 00 - FF | 00 |
| D105 | (Not display) | 00 - FF | 00 |
| D106 | (Not display) | 00 - FF | 00 |
| D107 | (Not display) | 00 - FF | 00 |
| D108 | (Not display) | 00 - FF | 00 |
| D109 | (Not display) | 00 - FF | 00 |
| D110 | (Not display) | 00 - FF | 00 |
| D111 | (Not display) | 00 - FF | 00 |
| D112 | (Not display) | 00 - FF | 00 |
| D113 | (Not display) | 00 - FF | 00 |
| D114 | (Not display) | 00 - FF | 00 |
| D115 | (Not display) | 00 - FF | 00 |
| D116 | (Not display) | 00 - FF | 00 |
| D117 | (Not display) | 00 - FF | 00 |
| D118 | (Not display) | 00 - FF | 00 |
| D119 | (Not display) | 00 - FF | 00 |

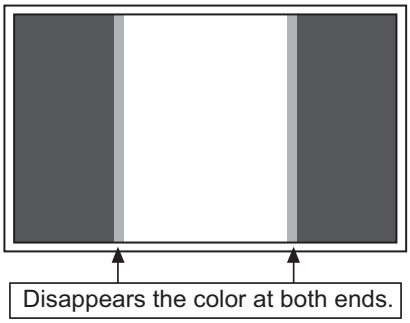
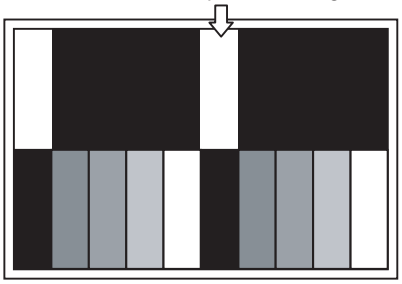
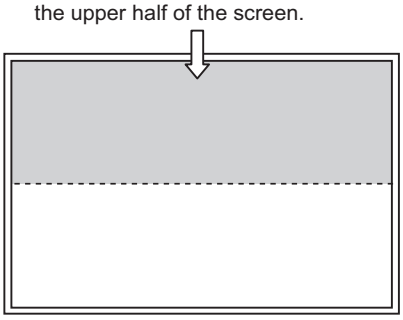
| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| D120 | (Not display) | 00 - FF | 00 |
| D121 | (Not display) | 00 - FF | 00 |
| D122 | (Not display) | 00 - FF | 00 |
| D123 | (Not display) | 00 - FF | 00 |
| D124 | (Not display) | 00 - FF | 00 |
| D125 | (Not display) | 00 - FF | 00 |
| D126 | (Not display) | 00 - FF | 00 |
| D127 | (Not display) | 00 - FF | 00 |
| D128 | (Not display) | 00 - FF | 00 |
| D129 | (Not display) | 00 - FF | 00 |
| D130 | (Not display) | 00 - FF | 00 |
| D131 | (Not display) | 00 - FF | 00 |
| D132 | (Not display) | 00 - FF | 00 |
| D133 | (Not display) | 00 - FF | 00 |
| D134 | (Not display) | 00 - FF | 00 |
| D135 | (Not display) | 00 - FF | 00 |
| D136 | (Not display) | 00 - FF | 00 |
| D137 | (Not display) | 00 - FF | 00 |
| D138 | (Not display) | 00 - FF | 00 |
| D139 | (Not display) | 00 - FF | 00 |
| D140 | (Not display) | 00 - FF | 00 |
| D141 | (Not display) | 00 - FF | 00 |
| D142 | (Not display) | 00 - FF | 00 |
| D143 | (Not display) | 00 - FF | 00 |
| D144 | (Not display) | 00 - FF | 00 |
| D145 | (Not display) | 00 - FF | 00 |
| D146 | (Not display) | 00 - FF | 00 |
| D147 | (Not display) | 00 - FF | 00 |
| D148 | (Not display) | 00 - FF | 00 |
| D149 | (Not display) | 00 - FF | 00 |
| D150 | (Not display) | 00 - FF | 00 |
| D151 | (Not display) | 00 - FF | 00 |
| D152 | (Not display) | 00 - FF | 00 |
| D153 | (Not display) | 00 - FF | 00 |
| D154 | (Not display) | 00 - FF | 00 |
| D155 | (Not display) | 00 - FF | 00 |
| D156 | (Not display) | 00 - FF | 00 |
| D157 | (Not display) | 00 - FF | 00 |
| D158 | (Not display) | 00 - FF | 00 |
| D159 | (Not display) | 00 - FF | 00 |
| D160 | (Not display) | 00 - FF | 00 |
| D161 | (Not display) | 00 - FF | 00 |
| D162 | (Not display) | 00 - FF | 00 |
| D163 | (Not display) | 00 - FF | 00 |
| D164 | (Not display) | 00 - FF | 00 |
| D165 | (Not display) | 00 - FF | 00 |
| D166 | (Not display) | 00 - FF | 00 |
| D167 | (Not display) | 00 - FF | 00 |
| D168 | (Not display) | 00 - FF | 00 |
| D169 | (Not display) | 00 - FF | 00 |
| D170 | (Not display) | 00 - FF | 00 |
| D171 | (Not display) | 00 - FF | 00 |
| D172 | (Not display) | 00 - FF | 00 |
| D173 | (Not display) | 00 - FF | 00 |
| D174 | (Not display) | 00 - FF | 00 |
| D175 | (Not display) | 00 - FF | 00 |
| D176 | (Not display) | 00 - FF | 00 |
| D177 | (Not display) | 00 - FF | 00 |
| D178 | (Not display) | 00 - FF | 00 |
| D179 | (Not display) | 00 - FF | 00 |
| D180 | (Not display) | 00 - FF | 00 |
| D181 | (Not display) | 00 - FF | 00 |
| D182 | (Not display) | 00 - FF | 00 |
| D183 | (Not display) | 00 - FF | 00 |
| D184 | (Not display) | 00 - FF | 00 |
| D185 | (Not display) | 00 - FF | 00 |
| D186 | (Not display) | 00 - FF | 00 |
| D187 | (Not display) | 00 - FF | 00 |

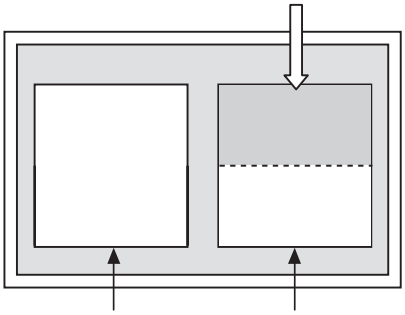
#### 4.6.5 MAIN CPU SYETEM SETTING (*Fixed values)

| Item No. | Item name | Variable range | Setting value |
|---|---|---|---|
| Z001 | (Not display) | 00 - FF | 00 |
| Z002 | (Not display) | 00 - FF | 00 |
| Z003 | (Not display) | 00 - FF | 00 |
| Z004 | (Not display) | 00 - FF | 00 |
| Z005 | (Not display) | 00 - FF | 00 |
| Z006 | (Not display) | 00 - FF | 00 |
| Z007 | (Not display) | 00 - FF | 00 |
| Z008 | (Not display) | 00 - FF | 00 |
| Z009 | (Not display) | 00 - FF | 00 |
| Z010 | (Not display) | 00 - FF | 00 |

## 4.7 ADJUSTMENT PROCEDURE

### 4.7.1 VIDEO CIRCUIT

| Item | Measuring instrument | Test point | Adjustment part | Description |
|---|---|---|---|---|
| **625i<br>A-D OFFSET** | Remote control unit<br><br>Signal generator | | [1.ADJUST]<br>S001: PREPARE<br>(Adjustment setting mode change)<br><br>S008: 5i CB OF(625i cb offset)<br>S009: 5i CR OF(625i cr offset)<br><br>S030: R DRIVE(Red drive)<br>S031: G DRIVE(Green drive)<br>S032: B DRIVE(Blue drive) | (1) Receive a 625i component ramp pattern signal.<br>(2) Set PICTURE MODE to "**STANDARD**".<br>(3) Set ZOOM to "**FULL**".<br>(4) Set COLOUR TEMP. to "**NORMAL**".<br>(5) Select "**1.ADJUST**" from the SERVICE MODE.<br>(6) Set **< S030 >** (R DRIVE), **< S031 >** (G DRIVE) and **< S032 >** (B DRIVE) to "**133**".<br>(7) Set **< S001 >** (adjustment setting mode change) to set "**8**" and it change to the 625i A-D offset adjustment setting mode.<br>(8) Adjust **< S008 >** (625i Cb offset) and **< S009 >** (625i Cr offset) to lose the gap (red line, green line and blue line) which appears at both ends of a white part at the centre of the screen.<br>(9) Set **< S001 >** to set "**0**" and it change to the normal mode.<br>(10) Press the **[MUTING]** key to memoirze the set value. |
|  | | | | |
| **1125i (50Hz)<br>BRIGHTNESS** | Remote control unit<br><br>Signal generator | | [1.ADJUST]<br>S001: PREPARE<br>(Adjustment setting mode change)<br><br>S012: HD BL(1125i brightness)<br><br>S030: R DRIVE(Red drive)<br>S031: G DRIVE(Green drive)<br>S032: B DRIVE(Blue drive) | (1) Receive a 1125i (50Hz) gray scale pattern signal.<br>(2) Set PICTURE MODE to "**STANDARD**".<br>(3) Set ZOOM to "**FULL**".<br>(4) Set COLOUR TEMP. to "**NORMAL**".<br>(5) Select "**1.ADJUST**" from the SERVICE MODE.<br>(6) Set **< S030 >** (R DRIVE), **< S031 >** (G DRIVE) and **< S032 >** (B DRIVE) to "**133**".<br>(7) Set **< S001 >** (adjustment setting mode change) to set the values "**12**" and it change to the 1125i black level adjustment setting mode.<br>(8) Adjust **< S012 >** (1125i brightness) to set the 0% black part in the upper half of the screen to be brightest.<br>(9) Set **< S001 >** to set "**0**" and it change to the normal mode.<br>(10) Press the **[MUTING]** key to memoirze the set value. |
| Set the 0% black part to be brightest.<br>  | | | | |
| **1125i (50Hz)<br>A-D OFFSET** | Remote control unit<br><br>Signal generator | | [1.ADJUST]<br>S001: PREPARE<br>(Adjustment setting mode change)<br><br>S013: HD CB OF(1125i cb offset)<br>S014: HD CR OF(1125i cr offset)<br><br>S030: R DRIVE(Red drive)<br>S031: G DRIVE(Green drive)<br>S032: B DRIVE(Blue drive) | (1) Receive a 1125i (50Hz) 30% all white pattern signal.<br>(2) Set PICTURE MODE to "**STANDARD**".<br>(3) Set ZOOM to "**FULL**".<br>(4) Set COLOUR TEMP. to "**NORMAL**".<br>(5) Select "**1.ADJUST**" from the SERVICE MODE.<br>(6) Set **< S030 >** (R DRIVE), **< S031 >** (G DRIVE) and **< S032 >** (B DRIVE) to "**133**".<br>(7) Set **< S001 >** (adjustment setting mode change) to set "**13**" and it change to the 1125i A-D offset adjustment setting mode.<br>(8) Adjust **< S013 >** (1125i Cb offset) to minimize the blue noise in the upper half of the screen.<br>(9) Set **< S014 >** (1125i Cr offset) to minimize the blue noise in the upper half of the screen.<br>(10) Set **< S001 >** to set "**0**" and it change to the normal mode.<br>(11) Press the **[MUTING]** key to memoirze the set value. |
| Minimize the red and blue noises in the upper half of the screen.<br>  | | | | |

| Item | Measuring instrument | Test point | Adjustment part | Description |
|---|---|---|---|---|
| **SUB SCREEN A-D OFFSET** | Remote control unit<br><br>Signal generator | | [1.ADJUST]<br>S001: PREPARE<br>(Adjustment setting mode change)<br><br>S016: RT CB OF<br>(Sub screen cb offset)<br>S017: RT CR OF<br>(Sub screen cr offset)<br><br>S030: R DRIVE(Red drive)<br>S031: G DRIVE(Green drive)<br>S032: B DRIVE(Blue drive) | (1) Set PICTURE MODE to "**STANDARD**".<br>(2) Set ZOOM" to "**FULL**".<br>(3) Set COLOUR TEMP. to "**NORMAL**".<br>(4) Set MULTI SCREEN to "**2 pictures**".<br>(5) Receive a PAL 30% all white pattern signal on the Right screen. At the same time, set the Left screen in VIDEO-1 mode (No signal).<br>(6) Select "**1.ADJUST**" from the SERVICE MODE.<br>(7) Set **< S030 >** (R DRIVE), **< S031 >** (G DRIVE) and **< S032 >** (B DRIVE) to "**133**".<br>(8) Set **< S001 >** (adjustment setting mode change) to set "17" and it change to the sub screen A-D offset adjustment setting mode.<br>(9) Adjust **< S016 >** (Sub screen cb offset) to minimize the blue noise in the upper half of the screen.<br>**If you select an adjustment item < S016 >, then the screen automatically turn to twin pictures mode.**<br>(10) Adjust **< S017 >** (Sub screen cr offset) to minimize the red noise in the upper half of the screen.<br>(11) Readjust **< S016 >** and **< S017 >** to set the upper half of the screen to be the blackest.<br>(12) Set **< S001 >** to set "**0**" and it change to the normal mode.<br>(13) Press the **[MUTING]** key to memoirze the set value. |
| Set the 0% block part to be brightest.<br>  <br>VIDEO-1 <NO SIGNAL><br>TV(RF) <30% all white> | | | | |
| **WHITE BALANCE (HIGHLIGHT)** | Remote control unit<br><br>Signal generator | | [1.ADJUST]<br>S030: R DRIVE (Red drive)<br>S031: G DRIVE (Green drive)<br>S032: B DRIVE (Blue drive) | (1) Receive a PAL 75% all white signal.<br>(2) Set PICTURE MODE to "**STANDARD**".<br>(3) Set ZOOM to "**FULL**".<br>(4) Set COLOUR TEMP. to "**NORMAL**".<br>(5) Select "**1.ADJUST**" from the SERVICE MODE.<br>(6) Adjust to Keep one of **< S030 >** (Red drive), **< S031 >** (Green drive) or **< S032 >** (Blue drive) unchanged, then lower the other two so that the all-white screen is equally white throughout.<br>**NOTE:**<br>Set one or more of **< S030 >**, **< S031 >**, and **< S032 >** to "**85**".<br>(7) Check that white balance is properly tracked from low light to high light. If the white balance tracking is deviated, adjust to correct it.<br>(8) Press the **[MUTING]** key to memoirze the set value. |

# SECTION 5
# TROUBLESHOOTING

## 5.1 SELF CHECK FEATURE

### 5.1.1 OUTLINE

This unit comes with the "Self check" feature, which checks the operational state of the circuit and displays/saves it during failure.Diagnosis is performed when power is turned on, and information input to the main microcomputer is monitored at all time.Diagnosis is displayed in 2 ways via screen display and LED flashes. Failure detection is based on input state of $I^2C$ bus and the various control lines connected to the main microcomputer.

### 5.1.2 HOW TO ENTER THE SELF CHECK MODE

Before entering the SERVICE MODE, confirm that the setting of VCR/TV/ DVD switch is at the "**TV**" side. If the switches have not been properly set, you cannot enter the SERVICE MODE.

(1) Press the **[INFORMATION]** key and **[MUTING]** key simultaneously, then enter the SERVICE MODE.
(2) Press the **[2]** key SELF CHECK MODE.
(3) Press the **[RED]** key to enter Page 2 of the SELF CHECK MODE.
*Use the **[GREEN]** key to toggle between Page 1 and Page 2.

**NOTE:**

When a number key other than the **[2]** key is pressed in the SERVICE MODE screen, the other relevant screen may be displayed.
This is not used in the SELF CHECK MODE. Press the **[MENU]** key to return to the MAIN MENU SCREEN.

### 5.1.3 HOW TO EXIT THE SELF CHECK MODE

**To Save Failure History:**

Turn off the power by unplugging the AC power cord plug when in the Self check display mode.

**To Clear (Reset) Failure History:**

Turn off the power by pressing the **[POWER]** key on the remote control unit when in the Self check display mode.

### 5.1.4 FAILURE HISTORY

Failure history can be counted up to 9 times for each item. When the number exceeds 9, display will remain as 9. Failure history will be stored in the memory unless it has been deleted.

**NOTE:**

Only SYNC (with/without sync signals) will be neither counted nor stored.

### 5.1.5 POINTS TO NOTE WHEN USING THE SELF CHECK FEATURE

In addition to circuit failures (abnormal operation), the following cases may also be iagnosed as "Abnormal" and displayed and counted as "NG".

(1) Temporary defective transmissions across circuits due to pulse interruptions
(2) Misalignment in the on/off timing of power for $I^2C$ bus (VCC) when turning on/off the main power.

Diagnosis may be impeded if a large number of items are displayed as "NG". As such, start Self check check only after 3 seconds in the case of receivers and 5 seconds in the case of panels upon turning on the power. If recurrences are expected, ensure to clear (reset) the failure history and record the new diagnosis reults.

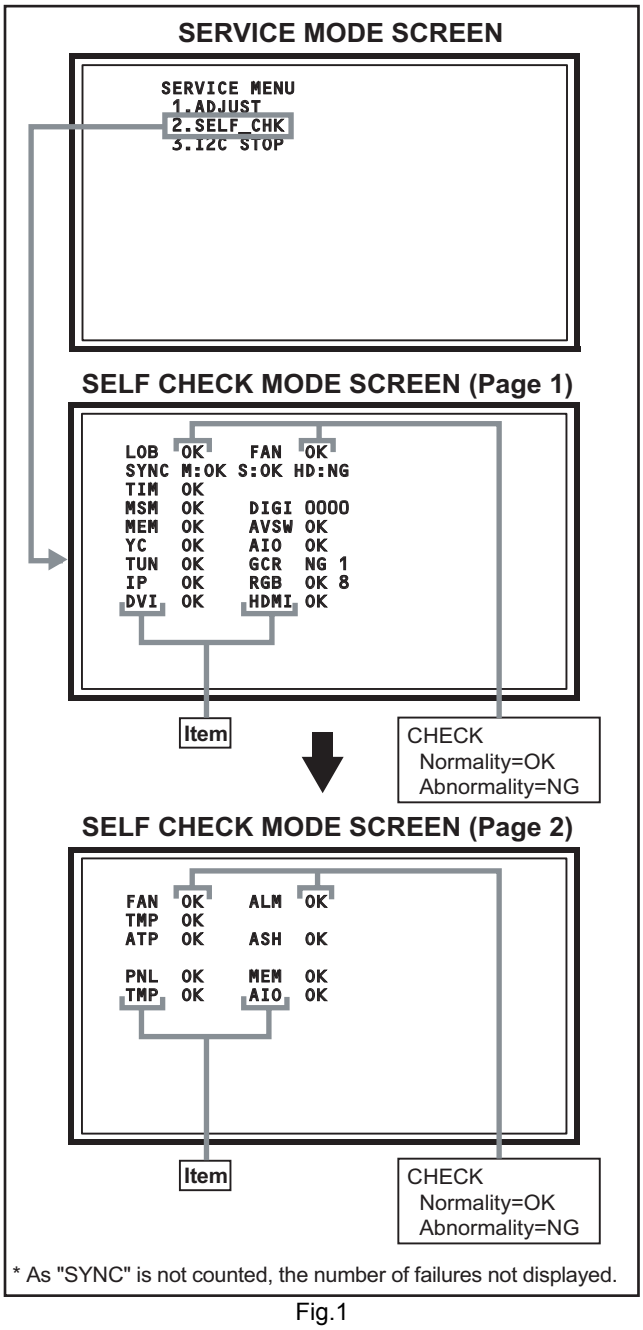



Fig.1

### 5.1.6 DETAILS

Self check is performed for the following items:

**< Page 1 of screen >**

| Detection item | Display | Detection content | Diagnosis signal (line) | Detection timing |
|---|---|---|---|---|
| Low bias line short protection | LOB | Confirmation of operation of the low bais (2.5V / 3.3V / 5V / 9V) protection circuit. **Q9801 , Q9822 [REGULATOR PWB]** | LB_PRO | Detection starts 3 seconds after the power is turned on. If error continues between 400ms the power is turned off. |
| Abnormal rise of temperature in audio circuit | FAN | Confirmation of the temperature of audio circuit. **TH6661 [ANALOG SIGNAL PWB]** | SDA | Detection starts 3 seconds after the power is turned on. If the temperture of 90°C is detected for 3 seconds the power is turned off. |
| Presence of sync signal | SYNC | Confirmation of presence of video sync signal. M : Main sync signal S : Sub sync signal HD : Component sync signal **IC201 [ANALOG SIGNAL PWB]** | SDA | Confirmation of presence of sync signal in video signal. |
| AC power input | TIM | Not used. | --- | --- |
| Main CPU communication | MSM | Not used. | --- | --- |
| Digital tuner | DIGI | Not used. | --- | --- |
| Main memory | MEM | Confirmation of reply of ACK signal which uses $I^2C$ communication. **IC7602 [DIGITAL SIGNAL PWB]** | SDA | Same as above. |
| AV select switch | AVSW | Same as above. **IC301, IC501 [ANALOG SIGNAL PWB]** | SDA | Same as above. |
| 3 dimensions YC separator | YC | Not used. | --- | --- |
| Multi sound process | AIO | Not used. | --- | --- |
| RF tuner | TUN | Confirmation of reply of ACK signal which uses $I^2C$ communication. **TU3002 [RECEIVER PWB]** | SDA | If it checks whenever $I^2C$ communication is performed and no reply of ACK signal an error will be counted. |
| Ghost reduction | GCR | Not used. | --- | --- |
| DIST process | IP | Confirmation of reply of ACK signal which uses $I^2C$ communication. **IC3001 [DIGITAL SIGNAL PWB]** | SDA | If it checks whenever $I^2C$ communication is performed and no reply of ACK signal an error will be counted. |
| RGB process | RGB | Confirmation of reply of ACK signal which uses $I^2C$ communication. **IC3001 [DIGITAL SIGNAL PWB]** | SDA | If it checks whenever $I^2C$ communication is performed and no reply of ACK signal an error will be counted. |
| DVI (Digital communication) | DVI | Not used. | --- | --- |
| Digital input | HDMI | Confirmation of reply of ACK signal which uses $I^2C$ communication. | SDA | If it checks whenever $I^2C$ communication is performed and no reply of ACK signal an error will be counted. |

**< Page 2 of screen >**

| Detection item | Display | Detection content | Diagnosis signal (line) | Detection timing |
|---|---|---|---|---|
| Fan lock | FAN | Not used. | --- | --- |
| Abnormal of operation of PANEL | ALM | Not used. | --- | --- |
| Abnormal rise of temperature in PANEL | TMP | Not used. | --- | --- |
| Abnormal rise of temperature in audio circuit | ATP | Not used. | --- | --- |
| Short circuit detection of audio circuit | ASH | Not used. | --- | --- |
| Panel communication | PNL | Not used. | --- | --- |
| Sub memory | MEM | Not used. | --- | --- |
| Temp. sensor | TMP | Not used. | --- | --- |
| Audio control | AIO | Confirmation of reply of ACK signal which uses $I^2C$ communication. **IC6521 [ANALOG SIGNAL PWB]** | SDA | If it checks whenever $I^2C$ communication is performed and no reply of ACK signal an error will be counted. |

### 5.1.7 METHOD OF DISPLAY WHEN A RASTER IS NOT OUTPUT

In the state where a raster is not output by breakdown of the set, an error is displayed by blink of the POWER LED.

| Type of error | POWER LED flash cycle |
|---|---|
| Low bias line short protection | Green turnig on and off at 1 second intervals. |
| Abnormal rise of temperature in audio circuit | Green turnig on and off at 0.1 second intervals. |

**< Explanation of operation >**

If error is detected, the power is turned off.
Shortly after a power is turned off, POWER LED will be blinked.
Power cannot be turned on until the power cord takes out and inserts, after a power is turned off.

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